

TECHNICAL REPORT 903

**PRICING AND
AVAILABILITY OF ESSENTIAL DRUGS
IN KAZAKSTAN PHARMACIES**

September 1997

TECHNICAL REPORT # 903

**PRICING AND AVAILABILITY
OF ESSENTIAL DRUGS
IN KAZAKSTAN PHARMACIES
(October 1996-May 1997)**

Grace Hafner
Zhenya Samyshkin
Talgat Nurgozhin

Submitted by the *ZdravReform* Program to:
AID/ENI/HR/HP

AID Contract No CCN-0004-C-004023-00
Managed by Abt Associates Inc.
with offices in Bethesda, Maryland, USA
Moscow, Russia; Kiev, Ukraine; Almaty, Kazakhstan

September 30, 1997

TABLE OF CONTENTS

1.0 PURPOSE	3
2.0 BACKGROUND.....	3
3.0 ACTIVITIES	3
3.1. THE SURVEY	3
3.2. THE DATA	4
3.3. ANALYSIS QUESTIONS	5
4.0 APPLICATIONS.....	8
5.0 CONCLUSIONS	9
6.0 FUTURE REPORTS.....	9
GRAPHS.....	10

1.0 PURPOSE

There is a serious void in Kazakhstan of data on prices and availability of common drugs within the retail pharmacy market. This type of data could be used in several ways: a) the government could monitor needs in different areas of the country; b) the government could monitor the effects of privatization of pharmacies; and c) retail pharmacies and wholesalers could monitor competition. The need for this activity has been voiced by various Kazakstani individuals and foreign contractors.

This report provides a sample of the possibilities in this field for an enterprising local surveyor. It provides a snap shot of the Kazakhstan pharmaceutical market during the period of May 1996 to April 1997, during and immediately following privatization. Finally, this report provides lessons in the difficulties and limitations of doing such an analysis in today's volatile pharmacy sector.

2.0 BACKGROUND

Farmatsia was the State Holding Company formed by a Presidential Decree in August 1993 to provide interim pharmacy services to the Republic of Kazakhstan (RK). A staged privatization of Farmatsia began in January 1995 and was essentially completed by December 1996, creating over one thousand private pharmacies and three hundred state owned pharmacies, according to data furnished by the State Property Management Committee (GKI).

In February 1996, the Minister of Health issued an order that the Essential Drug List of RK would be the accepted national list of drugs. This list of over three hundred drugs was developed through the efforts of the Ministry of Health (MOH), with technical assistance from *ZdravReform* experts, and is based on the WHO's list of essential drugs. Its purpose is to increase the government's efficiency when purchasing drugs for public sector use, by using carefully selected drugs with known therapeutic benefit. The Essential Drug List is a means to promote the use of international drug names to increase awareness in the health providers, and decrease prescribing errors. It also may decrease the reliance on "brand" names which are generally more expensive and encourage purchase of less expensive generic equivalents when available.

3.0 ACTIVITIES

3.1 The Survey

A drug tracer list was established by *ZdravReform* experts, using twenty-five different drugs. These drugs were selected from the Essential Drug List of the RK to represent vital medicines that should be available in retail pharmacies. There is also the implication that the availability of these drugs in the private sector reflects the public sector availability, since the government purchases from and through this private sector.

The drug tracer list was then used by local surveyors on contract to ascertain the price and availability of these drugs in both state and private pharmacies. At the beginning of this survey, in May 1996, the privatization of Farmatsia was ongoing and there was substantial mix of private

and state pharmacies. By the end of the survey in April 1997, there was a negligible number of state pharmacies.

Data collection for this tracer list was originally performed by a local contractor, VIMA, (as part of a collaboration with USAID contractor Carana Corporation, which had sub-contracted VIMA.). VIMA was supposed to collect data on a monthly basis from May 1996 through September 1996. At the end of September, VIMA apparently finished its contract with Carana and entered the drug wholesale business. At this time Abt terminated its relationship with VIMA, due to its inadequate performance in supplying timely, accurate and complete data.

ZdravReform decided to contract its own surveyor and hired BRIF Social and Marketing Research Agency (recommended by SOMARC Project.). BRIF was receptive to suggestions, and collected data in a timely fashion, on a monthly basis. Data was collected by having a data collector present a form to a pharmacist from three pharmacies in each region: two private and one public. The same pharmacies were used each time. If a state pharmacy turned private, it was supposed to be reported in the monthly report. No reports of this occurred, but it is possible that the surveyor may not have been aware of changes in ownership.

The data collection form was printed with twenty-five international drug names, and presented at the pharmacies by the surveyor. The store pharmacist filled in the strength(s) available, package size, and dosage form. The form also suggested brand names since many pharmacists do not seem to know all the generic names and are more familiar with the brand names.

3.2 Data

May 1996 through September 1996: VIMA had only provided data and reports for four regions in May, six in August, and four in September. Retail prices appeared to remain relatively stable over this period. Comparisons of prices between state and retail pharmacies were also attempted. There appeared to be a slight difference, with private pharmacies being about 5 percent lower in price. However, this should be considered anecdotal due to the aforementioned difficulties. This data will not be reviewed further and is being mentioned for historical interest and lessons learned.

October 1996 through April 1997: BRIF came through with an intensive data collection effort involving two private and one state pharmacy, in each of seventeen regions (there were at that time a total of nineteen regions.). Based on previous work with VIMA, *ZdravReform* knew it was important to encourage collection of everything (all strengths, forms, brands) though it would make for a time-consuming analysis later.

Adjustments to the data included the following:

- Any incompletely reported data was deleted, due to the impossibility of retrospectively determining the missing information.
- Outliers were impossible to define, given the information collected. Thus all complete collected data were included in the analysis.

- Availability analysis was done on all twenty-five drugs.
- Pricing analysis was done on *ten* drugs whose data was most complete and which covered a spectrum of therapeutic activity, forming a sort of “Market Basket.” This “Market Basket” was defined in the following manner:
 - ◆ Nonsteroidals (used for pain, inflammation, arthritis.): Aspirin (acetylsalicylic acid); ibuprofen
 - ◆ Analgesic: paracetamol (acetaminophen)
 - ◆ Antibiotics, including one injectable: ampicillin, gentamicin, tetracycline, ciprofloxacin
 - ◆ Antihypertensives and cardiovascular drugs: furosemide, captopril, nitroglycerin

3.3 Analysis Questions

1. What is the average and the trend for prices of ten drugs reported as a national average between October 1996 and April 1997?

Method: Ten drugs that were most available and also had strengths that could be analyzed were used. Variations in strengths of each drug were evened out by calculating a gram dose, then recalculating a standard dose and package size, for purpose of analysis. Standard package size was based on the usual sales practices of Kazak pharmacies which sell drugs as a strip. Some consideration was given to the case of antibiotics, which are often sold as a strip of ten, which does not reflect a course of therapy. Package sizes were adjusted in these cases to reflect a normal course of therapy. The course of therapy was suggested by the *ZdravReform* pharmaceutical consultant based on standard Western practice for doses for an average adult and is defined as the usual length of treatment. In the case of chronic life long therapy, it is defined as a one month supply; for acute conditions, it is the amount of drug needed to treat that incident. Prices were changed from tenge to U.S. dollars, using the average monthly conversion rate. There was no monetary reform and the exchange rate remained stable over the given time period.

Analysis Trends for the ten drugs revealed the following: Fluctuations occurred, but in general, prices remained stable. Nitroglycerin prices did appear to increase, but this trend needs to be questioned because there is the chance that prices of oral capsules were inadvertently included in the analysis and skewed the data which had been collected for the sublingual tablets. There was a price drop in paracetamol in January 1997. A possible explanation is that more New Independent States (NIS) and former Soviet block drugs were surveyed rather than more expensive brand names. (*See Price Trend graphs below.*)

National average prices for period October 1996 to April 1997 can be used for a course of therapy analysis. The national average price of the drug was the monthly average price of the drug surveyed in fifty-one pharmacies nationwide, using the average of seven months' data. (See Method for discussion of price calculation and course of therapy.). Course of drug therapy can be analyzed as follows: if an average size adult has a severe headache which requires ten tablets (five doses) to treat, then the cost per treatment per patient would be U.S.\$1.20. To treat basic infections with ampicillin or tetracycline, for ten days, the cost would be U.S.\$4.50 or \$5.20 respectively. An adult using furosemide for hypertension or cardiovascular conditions might spend US\$2.00 per month. (*See National Average Prices graph.*)

Conclusions: Though there is not enough data to reach statistically verifiable conclusions, a number of useful inferences can be made. Prices were generally stable over the seven month data collection period.

An effect may be related to the practice in Kazakhstan of pricing the drugs only once at the time that the drugs are purchased from the wholesaler and introduced into store stock; and not updating the drug prices later to reflect increases in wholesaler prices. For example, in the United States, most chain pharmacies change the prices on the floor stock, as appropriate, to reflect even small changes. This may be due to the lack of computerization here, which makes changing prices more of an effort.

It should be noted that former Soviet-block and foreign drugs together *do* reflect the local situation. It must be taken into account that it was *not* possible to determine the proportion of local versus foreign goods in the market as a whole. In the analysis, some drug prices may be artificially inflated, (there could be significantly lower prices available on the market). An example is aspirin. Russian aspirin is available for as little as US\$0.27 for 10 tablets (as this could be more accurately done in countries with a more developed market) but the situation here sometimes forces the comparison of apples with oranges.

It is difficult to report the percentage of foreign versus NIS products available, but it appears that the foreign drugs are more expensive, thus inflating the average prices calculated in this survey. Using the logic that the NIS drugs are cheaper, are they equally available? Are consumers being forced to use higher priced foreign drugs?

Repacks by local pharmacists are also not taken into account. A pharmacist repackaging strips of ten from a larger bulk bottle may price this product significantly lower than a comparable manufacturer prepack and still make a good profit. This behavior could artificially lower some of the average prices reported in this survey.

2. What was the national availability as a percentage and a trend in twenty-five drugs over time period October 1996 to April 1997?

Method: Count as available any of the twenty-five drugs, within the three pharmacies surveyed in each region, if it was found in any strength of the designated dosage forms, in any quantity, at the time of the survey. This reasoning was followed because existing drug strengths could generally be manipulated to provide the correct doses (by splitting or doubling up.). Also, it was impossible to find one particular strength in one specific package size in all the pharmacies. Results of all regions were tallied as a national figure and reported as a percentage. This was done to try to get a reasonable sample size of fifty-one pharmacies.

Analysis Trends were graphed for the ten drugs for which the most data was collected (which had been analyzed for prices.). These ten drugs were aspirin, ibuprofen, paracetamol, ampicillin, gentamicin, tetracycline, ciprofloxacin, furosemide, captopril, and nitroglycerin. Of note is the

consistency of availability over time. Exceptions might be an increase in the availability of furosemide and a slight decline in nitroglycerin. (See *Availability Trend graphs*.)

Additional graphs for drugs that demonstrate exceptional changes or are of interest due to *national level* programs for tuberculosis, acute respiratory infection and childhood diarrheal diseases, and diabetes are attached. These drugs include rifampicin, streptomycin, trimethoprim/sulfamethoxazole, oral rehydration salts, and insulin (see also *Availability Trend graphs*). The main trend was consistent availability, whatever that may be for the particular drug.

Average national availability was measured between October 1996 until April 1997. This was measured as the percent available in the fifty-one stores surveyed in the country, using the average of seven months' data. Very common drugs such as aspirin and paracetamol were over 90 percent available. Gentamicin and tetracycline were over 80 percent available. Metronidazole, ampicillin and chloramphenicol were over 70 percent available. Drugs such as ibuprofen, ciprofloxacin, furosemide, nitroglycerin, trimethoprim/sulfamethoxazole, benzylpenicillin were about 60 percent available. Streptomycin and benzathine benzyl penicillin were about 50 percent available. The following drugs were under 30 percent available: captopril, rifampicin, oral rehydration salts, regular insulin, diazepam, isoniazid, miconazole, tolbutamide and salbutamol inhaler. (See *Average National Availability graph*.)

Conclusions on availability: Availability of each drug appeared to be generally consistent over time. The majority of drugs were at least 50 percent available. The period of the survey was not enough to register increases in availability which are expected over time. The survey period may not have been long enough to register serious drops in supply. However the consistent availability appears to be a positive trend.

Drugs with under 30 percent availability may have been affected by the following issues: captopril during the time of the survey was registered by only one manufacturer. The manufacturer's in-country representative was interviewed and stated that there had been some distribution problems during the survey time. Availability of this important drug is expected to improve in the future. Diazepam is a "controlled" drug here in the RK. This may account for an inaccurate picture of low availability (i.e., the drug is only available in certain state pharmacies, which may not been included in the survey.); miconazole and tolbutamide may have been poor choices for the survey. They appear to be generally unavailable. The tuberculosis (TB) drugs, isoniazid and rifampicin are usually provided to TB patients out of the state budget, through TB hospitals and dispensaries. Therefore, the shortage found in the retail pharmacies be misleading. Oral rehydration salts in large quantity had been donated by UNICEF and have been distributed through public health projects. This may have caused a lack of demand, which may in time account for the low availability in the private sector. Of grave concern is the shortage of insulin in the country. This is a staple of many diabetics' existence. There was a governmental emphasis this year on the improving the drug situation of diabetic patients. It may be that later in 1997 there may be resultant increases in the availability of insulin. This drug is also supplied through public health sector programs which were not measured in our survey.

4.0 APPLICATIONS

Originally, the objective of the survey was to analyze the data in order to demonstrate the effects of privatization of pharmacies on pharmaceutical prices. The privatization has gone so quickly and completely, however, that it is now very difficult to find a state control group. Availability is constant; prices are stable, and it is too early to see the full effects of privatization.

The shift to private sector supply of pharmaceuticals was not accompanied by any increase in consumer prices, as critics of privatization had feared. The overall market showed a high degree of price stability throughout 1996, during which time the sector was undergoing a shift from majority state to majority private ownership. No significant differences were observable between prices in state-owned and those in privately owned retail pharmacies, indicating that competition had forced state-owned stores to bring their prices into line with those of private stores in order to survive.¹

This work lays the groundwork for a potential application in considering the costs of medication to the citizens of the country. Calculating approximate duration of therapy, combined with common treatment schemes for certain diseases, and retail prices of drugs can be used to determine the cost of medicine to socially impacted citizens and the impact of this cost on the budget.

The government could apply information from this type of survey in order to refine its national drug list. Comparison of what is actually available in the pharmacies could be compared to the national essential drug list, and then adjusted as necessary.

The transition phase between the centralized system and the current privatized market may require more flexibility in applying government policies, and a more active governmental effort could facilitate a more open market. The current drug policies regarding import and registration might need adjustment in order to encourage and facilitate the import of generic drugs from all over the world to supplement the lower priced NIS drugs. More generics would provide more choice, increase competition, and decrease prices.

A private sector application for this work would be formation of a drug price data collection, analysis and reporting service as a potential business for an industrious entrepreneur. The time spent working with two local market research companies was educational. It demonstrated the difficulties local companies have in performing this type of data collection and analysis. Indeed, collection of prices (wholesale) has been attempted by several local companies, though the data collection and market basket analysis of the retail price market comparable to this project has not been done before to our knowledge. It seems necessary for any company deciding to enter this field to have recognize that long term success in this project is tied to objective comprehensive reporting and development of an honest unbiased reputation.

¹ "Pharmacy Sector Privatization and Restructuring in Kazakstan" Final Status Report, Krakoff, C., February, 1997

5.0 CONCLUSIONS

Lessons learned in data collection and analysis were as follows:

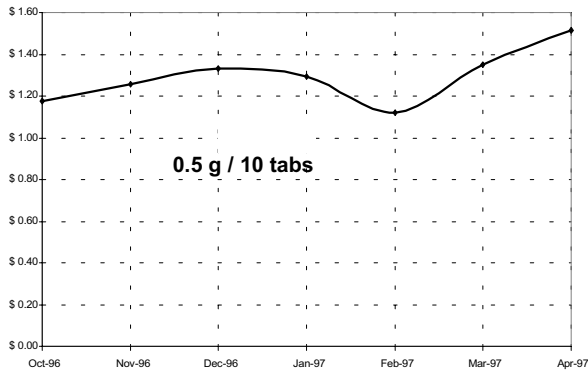
- The package sizes, strengths, and dosage forms differ between the stores, so **all** information needs to be collected. This will lead to more time-consuming analysis. but is a necessary step.
- Brand names are significantly higher in price than generic, and skew the data, but it appears necessary to use both to offer an accurate market snapshot.
- The pharmacists interviewed by data collectors are often confused by brand names and generic names. The surveyor should offer the necessary information to encourage accurate reporting.
- The pharmacists tend to report cost information on drugs in the same therapeutic family. This is another area where education directed toward the surveyed site can be beneficial.
- While surveyors are generally conscientious, they make mistakes in reporting incorrect forms, (for example: “tablets” for drugs that only have “injectable” forms.).
- Data collected is not statistically significant. (Costs would be prohibitive to do this on a larger scale).
- The surveyors should preferably have a medical background.
- It is difficult to monitor surveyors working in different areas of the country in order to assure accuracy and not practical with a short survey such as this one. However, over a long-term survey program, it would be advisable to have a supervisor do reviews of the data being collected, by actually visiting the various sites on a regular basis. This would provide quality assurance to the data.

6.0 FUTURE REPORTS

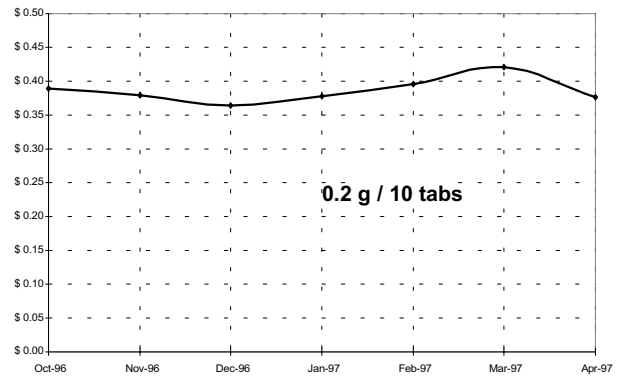
ZdravReform was fortunate in having a graduate student majoring in economics working here in Almaty this past summer as an intern. This intern collected more data on prices in several regions of Kazakhstan as well as two regions of Kyrgyzstan. Her report on drug price and availability during the summer months (July-August 1997) is expected soon and can be compared to the survey results reflected in this report (May 1996-April 1997).

PRICE TREND OCTOBER 1996-APRIL 1997

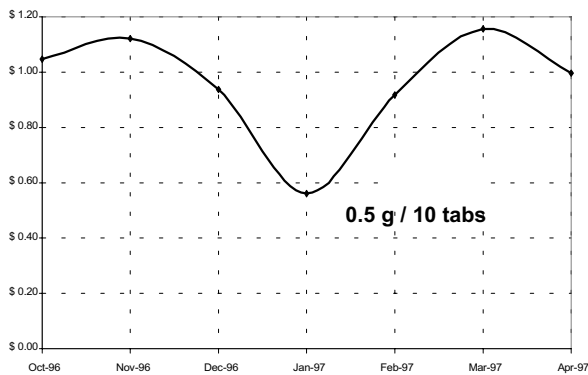
ASPIRIN



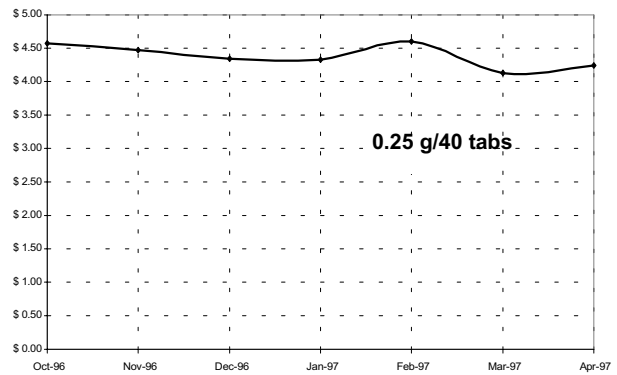
IBUPROFEN



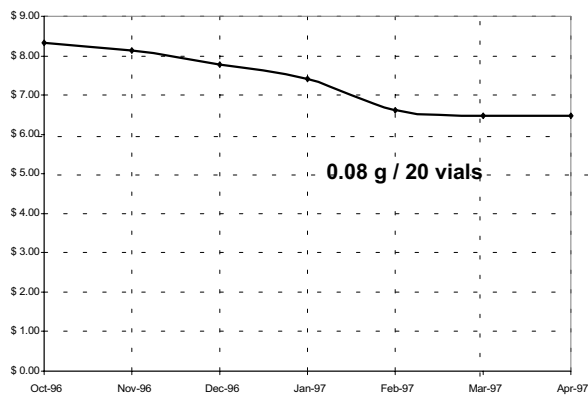
PARACETAMOL



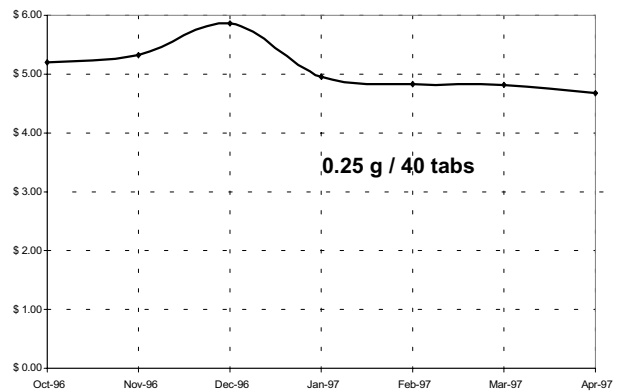
AMPICILLIN



GENTAMICIN

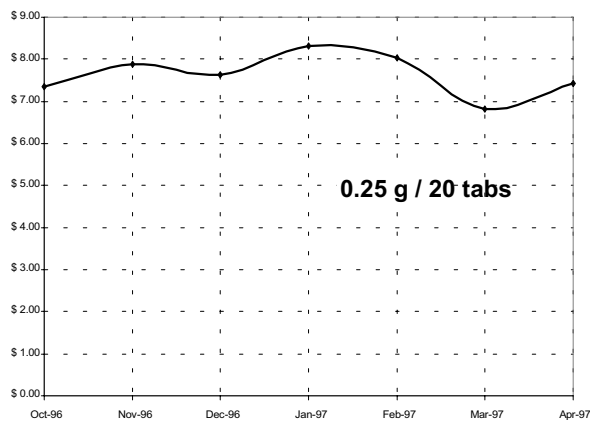


TETRACYCLINE

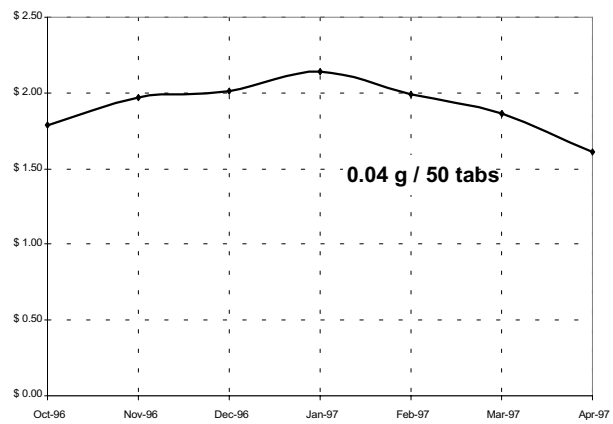


PRICE TREND OCTOBER 1996-APRIL 1997

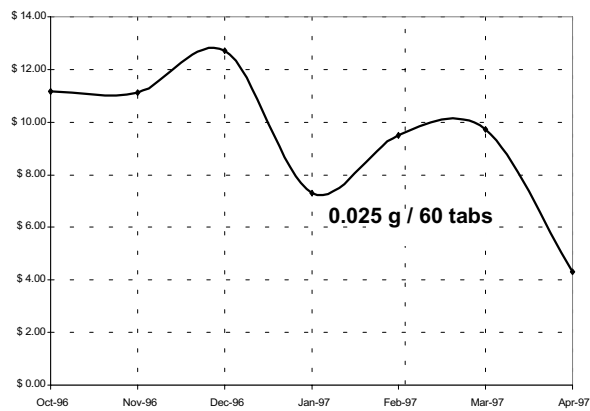
CIPROFLOXACIN



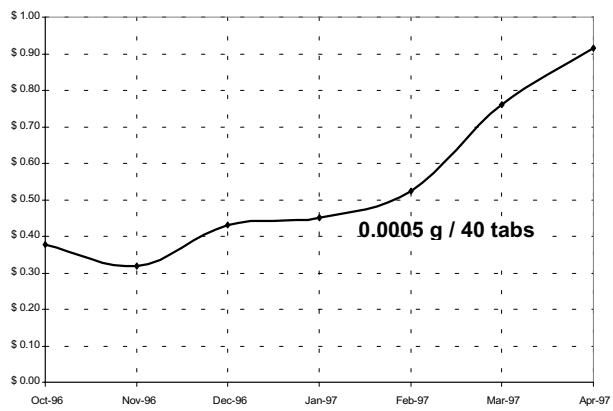
FUROSEMIDE



CAPTOPRIL

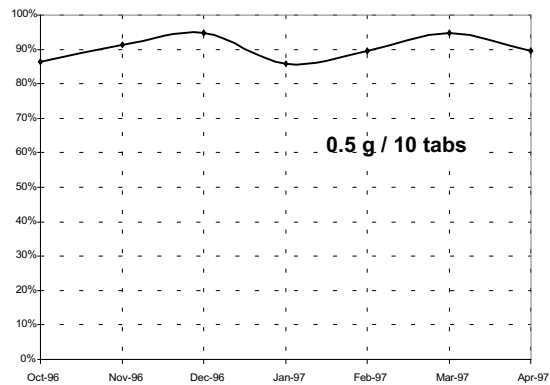


NITROGLYCERIN

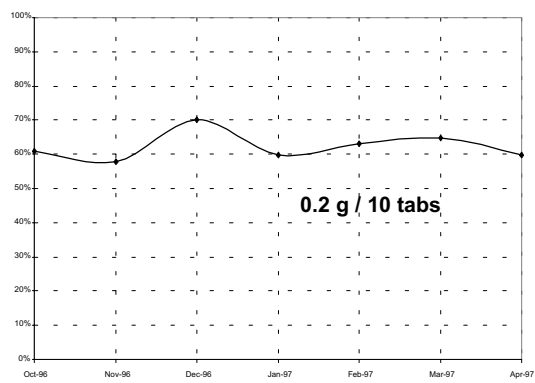


AVAILABILITY TREND, OCTOBER 1996-APRIL 1997

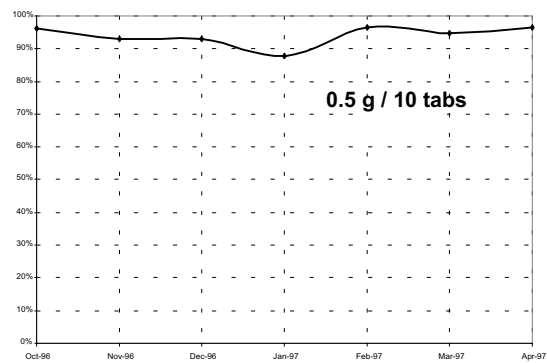
ASPIRIN



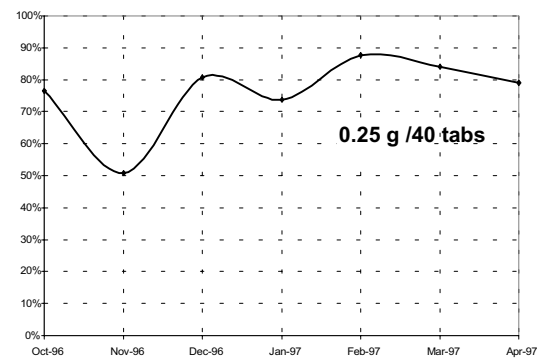
IBUPROFEN



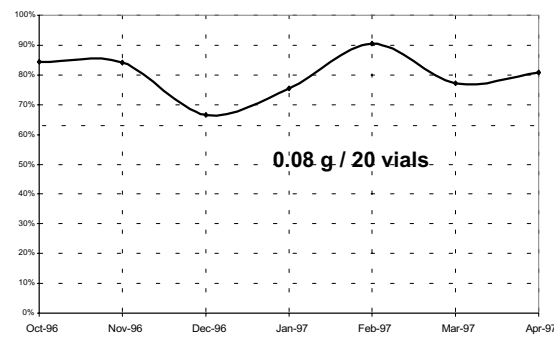
PARACETAMOL



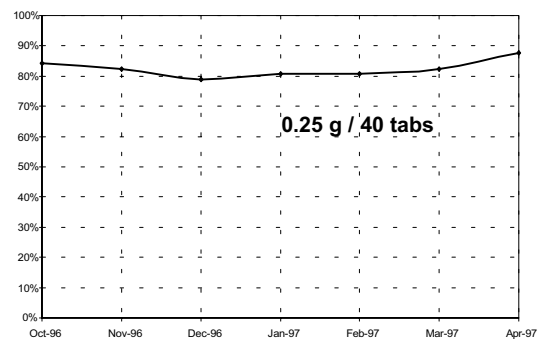
AMPICILLIN



GENTAMICIN

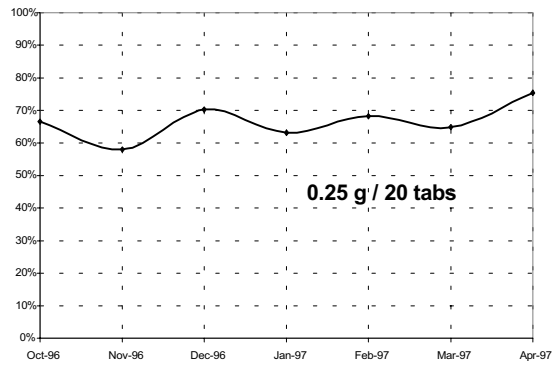


TETRACYCLINE

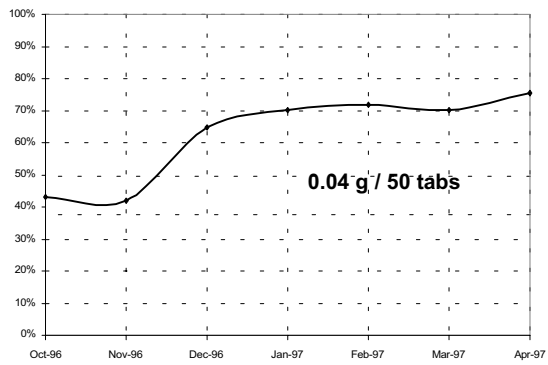


AVAILABILITY TREND OCTOBER 1996-APRIL 1997

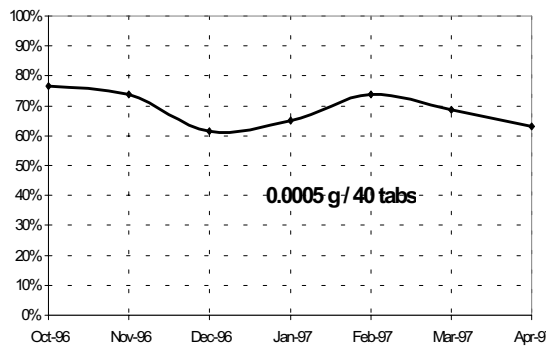
CIPROFLOXACIN



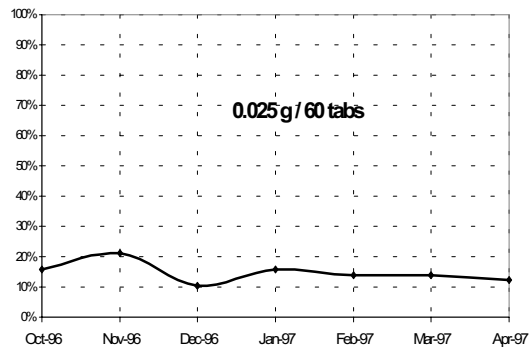
FUROSEMIDE



NITROGLYCERIN

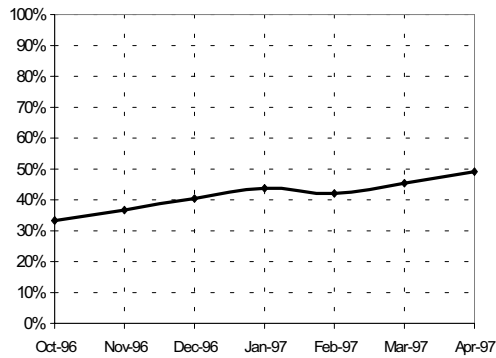


CAPTOPRIL

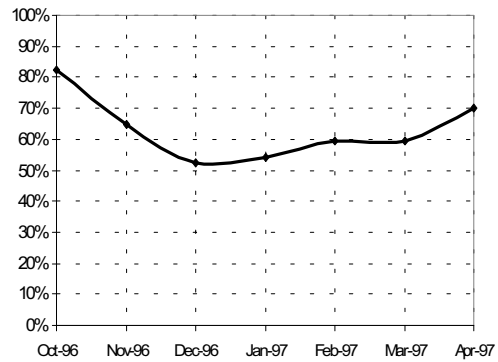


AVAILABILITY TREND OCTOBER 1996-APRIL 1997

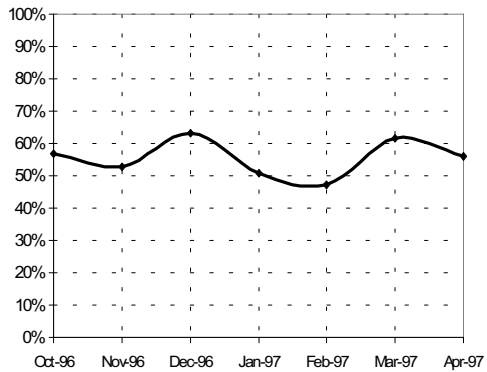
RIFAMPICIN



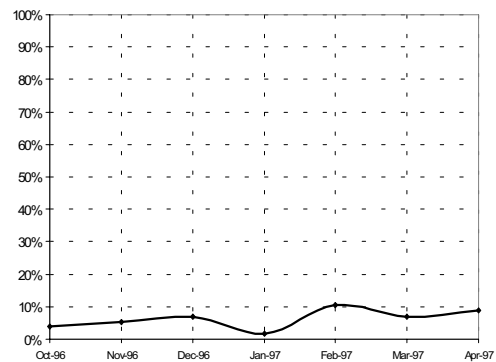
TMP/SMZ



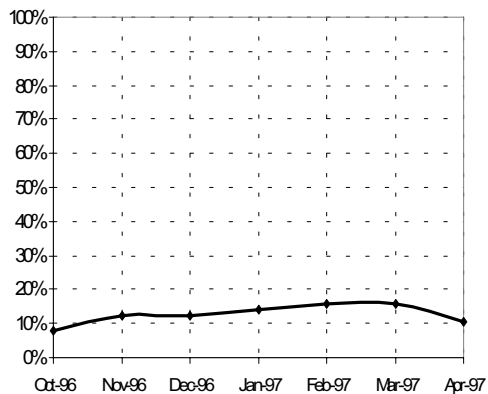
STREPTOMYCIN



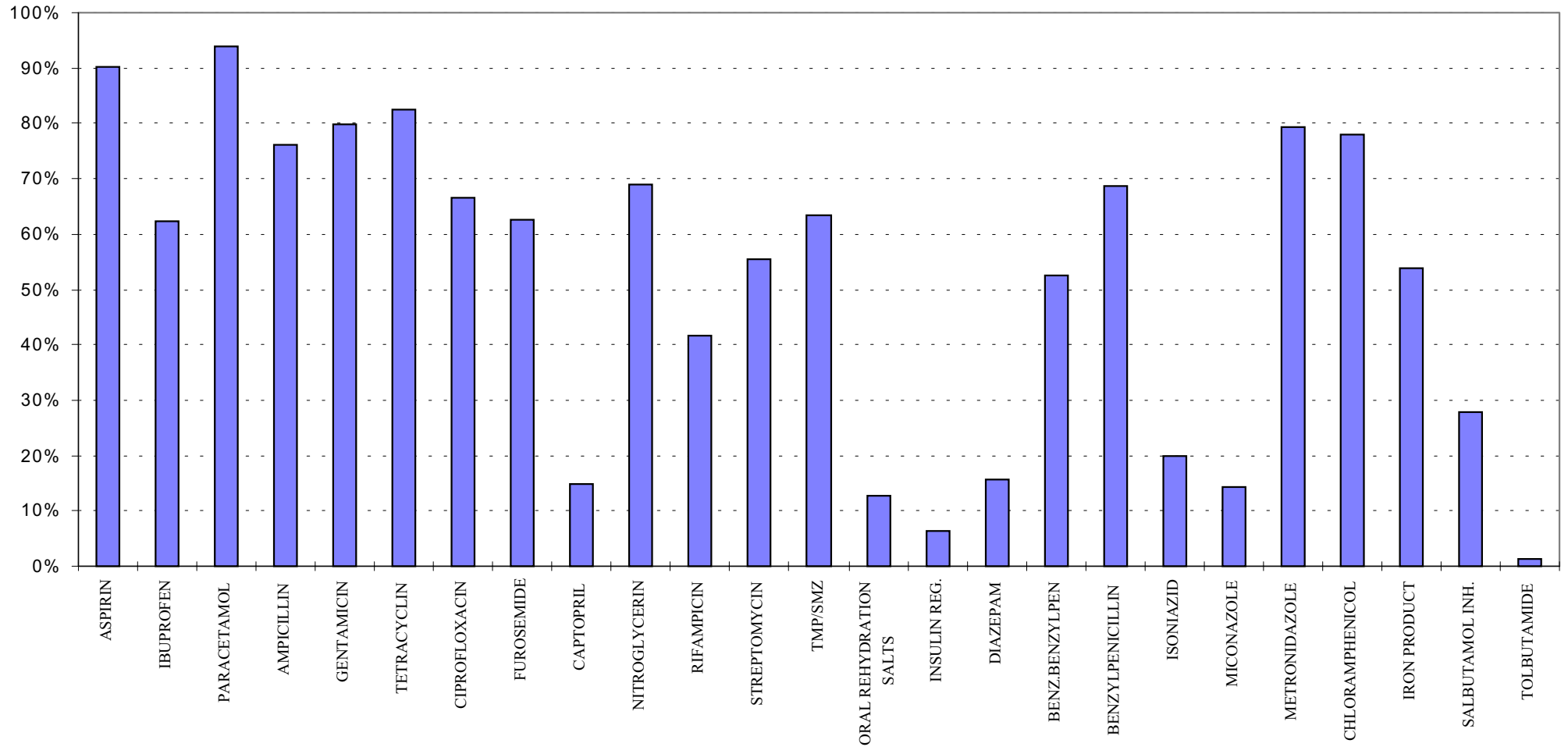
INSULIN



ORAL REHYDRATION SALTS



AVERAGE NATIONAL AVAILABILITY OF 25 DRUGS, OCTOBER 1996-APRIL 1997



NATIONAL AVERAGE PRICES, OCTOBER 1996 - APRIL 1997

